

# **Exhibit 25**

# **McGRAW-HILL DICTIONARY OF SCIENTIFIC AND TECHNICAL TERMS**

**Sixth  
Edition**

**McGraw-Hill**

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Exhibit 25  
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the cover: Representation of a fullerene molecule with a noble gas atom trapped inside. At the Permian-Triassic sedimentary boundary the noble gases helium and argon have been found trapped inside fullerenes. They exhibit isotope ratios quite similar to those found in meteorites, suggesting that a fireball meteorite or asteroid exploded when it hit the Earth, causing major changes in the environment. (Image copyright © Dr. Luann Becker. Reproduced with permission.)

Over the six editions of the Dictionary, material has been drawn from the following references: G. M. Garrity et al., *Taxonomic Outline of the Prokaryotes*, Release 2, Springer-Verlag, January 2002; D. W. Linzey, *Vertebrate Biology*, McGraw-Hill, 2001; J. A. Pechenik, *Biology of the Invertebrates*, 4th ed., McGraw-Hill, 2000; U.S. Air Force Glossary of Standardized Terms, AF Manual 11-1, vol. 1, 1972; F. Casey, ed., *Compilation of Terms in Information Sciences Technology*, Federal Council for Science and Technology, 1970; *Communications-Electronics Terminology*, AF Manual 11-1, vol. 3, 1970; P. W. Thrush, comp. and ed., *A Dictionary of Mining, Mineral, and Related Terms*, Bureau of Mines, 1968; *A DOD Glossary of Mapping, Charting and Geodetic Terms*, Department of Defense, 1967; J. M. Gilliland, *Solar-Terrestrial Physics: A Glossary of Terms and Abbreviations*, Royal Aircraft Establishment Technical Report 67158, 1967; W. H. Allen, ed., *Dictionary of Technical Terms for Aerospace Use*, National Aeronautics and Space Administration, 1965; *Glossary of Stinfo Terminology*, Office of Aerospace Research, U.S. Air Force, 1963; *Naval Dictionary of Electronic, Technical, and Imperative Terms*, Bureau of Naval Personnel, 1962; R. E. Huschke, *Glossary of Meteorology*, American Meteorological Society, 1959; *ADP Glossary*, Department of the Navy, NAVSO P-3097; *Glossary of Air Traffic Control Terms*, Federal Aviation Agency; *A Glossary of Range Terminology*, White Sands Missile Range, New Mexico, National Bureau of Standards, AD 467-424; *Nuclear Terms: A Glossary*, 2d ed., Atomic Energy Commission.

#### **McGRAW-HILL DICTIONARY OF SCIENTIFIC AND TECHNICAL TERMS, Sixth Edition**

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or other energy and produces a desired work-saving or other result, such as an electric heater, a radio, or an electronic range. { ə'pli-əns }

**appliance panel** [ENG] In electric systems, a metal housing containing two or more devices (such as fuses) for protection against excessive current in circuits which supply portable electric appliances. { ə'pli-əns ,pan-əl }

**applicable surfaces** [MATH] Surfaces such that there is a length-preserving map of one onto the other. { ə'p-lə-kə-bəl 'sər-fəs-əz }

**application** [COMPUT SCI] A computer program that performs a specific task, for example, a word processor, a Web browser, or a spread sheet. { ə'p-lə-kā-shən }

**application development language** [COMPUT SCI] A very-high-level programming language that generates coding in a conventional programming language or provides the user of a data-base management system with a programming language that is easier to implement than conventional programming languages. { ə'p-lə-kā-shən di'vel-əp-mənt ,lən-gwɪj }

**application development system** [COMPUT SCI] An integrated group of software products used to assist in the efficient development of computer programs and systems. { ə'p-lə-kā-shən di'vel-əp-mənt ,sis-təm }

**application generator** [COMPUT SCI] A commercially prepared software package used to create applications programs or parts of such programs. { ə'p-lə-kā-shən jen-ə-rād-ər }

**application package** [COMPUT SCI] A combination of required hardware, including remote inputs and outputs, plus programming of the computer memory to produce the specified results. { ə'p-lə-kā-shən ,pak-ij }

**application processor** [COMPUT SCI] A computer that processes data. { ə'p-lə-kā-shən 'prə-ses-ər }

**application program** [COMPUT SCI] A program written to solve a specific problem, produce a specific report, or update a specific file. { ə'p-lə-kā-shən ,prō-grəm }

**application program interface** [COMPUT SCI] A language that enables communication between computer programs, in particular between application programs and control programs. Abbreviated API. { ə'p-lə-kā-shən 'prō-grəm 'in-tər-fās }

**application server** [COMPUT SCI] A computer that executes commands requested by a Web server to fetch data from databases. Also known as app server. { ə'p-lə-kā-shən ,ser-vər }

**application-specific integrated circuit** [ELECTR] An integrated circuit that is designed for a particular application by integrating standard cells from a library, making possible short design times and rapid production cycles. Abbreviated ASIC. { ə'p-lə-kā-shən spi'sif-ik ,int-ɪ-grəd-əd 'sər-kət }

**applications technology satellite** [AERO ENG] Any artificial satellite in the National Aeronautics and Space Administration program for the evaluation of advanced techniques and equipment for communications, meteorological, and navigation satellites. Abbreviated ATS. { ə'p-lə-kā-shənz 'tek'nāl-ə-jē 'səd-ə,jɪt }

**application study** [COMPUT SCI] The detailed process of determining a system or set of procedures for using a computer for definite functions of operations, and establishing specifications to be used as a base for the selection of equipment suitable to the specific needs. { ə'p-lə-kā-shən ,stəd-ē }

**application system** [COMPUT SCI] A group of related applications programs designed to perform a specific function. { ə'p-lə-kā-shən ,sis-təm }

**application window** [COMPUT SCI] In a graphical user interface, the chief window of an application program, with a title bar, a menu bar, and a work area. { ə'p-lə-kā-shən ,wɪn,də }

**applicative language** [COMPUT SCI] A programming language in which functions are repeatedly applied to the results of other functions and, in its pure form, there are no statements, only expressions without side effects. { ə'p-lə,kād-iv ,lən-gwɪj }

**applied anatomy** [ANAT] 1. A discipline that considers problems involving the biomechanical functions of a body. 2. The application of anatomical principles to specific fields of human endeavor, for example, surgical anatomy. { ə'plɪd ə'nad-ə-mē }

**applied climatology** [CLIMATOL] The scientific analysis of climatic data in the light of a useful application for an operational purpose. { ə'plɪd ,klɪm-ə'täl-ə-jē }

**applied ecology** [ECOL] Activities involved in the management of natural resources. { ə'plɪd i'käl-ə-jē }

**applied epistemology** [COMPUT SCI] The use of machines or other models to simulate processes such as perception, recognition, learning, and selective recall, or the application of principles assumed to hold for human categorization, perception, storage, search, and so on, to the design of machines, machine programs, scanning, storage, and retrieval systems. { ə'plɪd i'pis-tə'mäl-ə-jē }

**applied inverse scattering theory** [PHYS] The branch of inverse scattering theory that treats the case in which the data provided are incomplete or corrupted by noise. { ə'plɪd 'in,vərs 'skad-ər-ɪŋ ,thē-ə-rē }

**applied meteorology** [METEOROL] The application of current weather data, analyses, or forecasts to specific practical problems. { ə'plɪd ,mēd-ē-ə'räl-ə-jē }

**applied potential tomography** [MED] A method of producing images of the electrical impedance of tissues, in which potentials are applied to the body through skin electrodes, and the resulting currents give rise to measurable potentials elsewhere on the body from which the impedance of organs and tissues can be determined. { ə'plɪd pə'ten-ʃəl tə'mäg-rə-fē }

**applied research** [ENG] Research directed toward using knowledge gained by basic research to make things or to create situations that will serve a practical or utilitarian purpose. { ə'plɪd ri,sərch }

**applied strategic research** [ENG] Research done to provide a basic understanding of a current applied project. { ə'plɪd strə'tē-jik ri'sərch }

**applied trim** [BUILD] Supplementary and separate decorative strips of wood or moldings applied to the face or sides of a frame, such as a doorframe. { ə'plɪd 'trim }

**appliqué** [GRAPHICS] A decoration or ornament made by cutting out and attaching one piece of material to the surface of another. [OPTICS] A combination of lenses that provides for the same focal length at three or more wavelengths. { ə'p-lə'kă }

**appliqué armor** [ORD] Material or attachment which can be installed on a tank to give it additional protection against kinetic- or nonkinetic-energy projectiles. { ə'p-lə'kă 'är-mər }

**appliqué circuit** [ELEC] Special circuit which is provided to modify existing equipment to allow for special usage; for example, some carrier telephone equipment designed for ring-down manual operation can be modified through the use of an appliqué circuit to allow for use between points having dial equipment. { ə'p-lə'kă 'sər-kət }

**apposition beach** [GEOL] One of a series of parallel beaches formed on the seaward side of an older beach. { ə'p-ə'zish-ən ,bēch }

**apposition eye** [INV ZOO] A compound eye found in diurnal insects and crustaceans in which each ommatidium focuses on a small part of the whole field of light, producing a mosaic image. { ə'p-ə'zish-ən ,ī }

**apposition fabric** [PETR] A primary orientation of the elements of a sedimentary rock that is developed or formed at time of deposition of the material; fabrics of most sedimentary rocks belong to this type. Also known as primary fabric. { ə'p-ə'zish-ən ,fab-rik }

**appressed** [BIOL] Pressed close to or lying flat against something. { ə'prest }

**approach** [MECH ENG] The difference between the temperature of the water leaving a cooling tower and the wet-bulb temperature of the surrounding air. [NAV] In air operations, a maneuver executed by an aircraft in making its transit from high-altitude enroute flight to the point where it begins the landing approach; includes maneuvers (such as flying race-track pattern) required for traffic control. { ə'prəʊch }

**approach and landing area** [NAV] An airspace of defined dimensions together with its runways and water channels, used by aircraft arriving at or departing from or operating within the vicinity of the airport. { ə'prəʊch ən 'land-ɪŋ ,er-ē-ə }

**approach-approach conflict** [PSYCH] Psychological conflict resulting from the necessity of choosing between two desirable alternatives. { ə'prəʊch ə'prəʊch 'kän-flɪkt }

**approach-avoidance conflict** [PSYCH] Psychological conflict that results when a goal has both desirable and undesirable aspects. { ə'prəʊch ə'vɔɪd-əns 'kän-flɪkt }

**approach chart** [NAV] An aeronautical chart which provides information about navigational facilities, flight patterns, radio aids and their frequencies, and so on, for use in making an



**field-emission microscope** [ELECTR] A device that uses field emission of electrons or of positive ions (field-ion microscope) to produce a magnified image of the emitter surface on a fluorescent screen. { 'fēld ə'mish-ən 'mī·krə'skōp }

**field-emission tube** [ELECTR] A vacuum tube within which field emission is obtained from a sharp metal point; must be more highly evacuated than an ordinary vacuum tube to prevent contamination of the point. { 'fēld ə'mish-ən,tüb }

**field-emitter array** [ELECTR] An array of pyramidal silicon structures, with spacing on the order of 10 micrometers, designed for field emission of electrons into a vacuum. { 'fēld i'mid-ər ə'rā }

**field emplacement** [ORD] Platform, support, or other position for artillery, machine guns, and so forth, in the field. { 'fēld əm·plās-mənt }

**field engineer** [COMPUT SCI] A professional who installs computer hardware on customers' premises, performs routine preventive maintenance, and repairs equipment when it is out of order. Also known as field service representative. [ENG] 1. An engineer who is in charge of directing civil, mechanical, and electrical engineering activities in the production and transmission of petroleum and natural gas. 2. An engineer who operates at a construction site. { 'fēld en·jə'nir }

**field-enhanced emission** [ELECTR] An increase in electron emission resulting from an electric field near the surface of the emitter. { 'fēld in'hənst i'mish-ən }

**field excitation** [MECH ENG] Control of the speed of a series motor in an electric or diesel-electric locomotive by changing the relation between the armature current and the field strength, either through a reduction in field current by shunting the field coils with resistance, or through the use of field taps. { 'fēld ek·si'tā·shən }

**field flattener** [OPTICS] A thin planoconvex lens placed in front of the photographic plate in some telescopes that have a curved focal plane so as to focus light on the flat plate. { 'fēld 'flat-ən-ər }

**field focus** [GEOPHYS] The total area or volume occupied by an earthquake source. { 'fēld ,fō·kəs }

**field fortification** [ORD] Fortification constructed in the field to strengthen the natural defenses of the ground features, including foxholes, obstacles, trenches, gun emplacements, and so forth. { 'fēld fōrd-ə·fə'kā·shən }

**field-free emission current** [ELECTR] Electron current emitted by a cathode when the electric field at the surface of the cathode is zero. Also known as zero-field emission. { 'fēld ,frē i'mish-ən ,kə-rənt }

**field frequency** [ELECTR] The number of fields transmitted per second in television; equal to the frame frequency multiplied by the number of fields that make up one frame. Also known as field repetition rate. { 'fēld ,frē·kwən·sē }

**field galaxy** [ASTRON] An isolated galaxy that does not belong to a cluster. { 'fēld ,gal·ik·sē }

**field geology** [GEOL] The study of rocks and rock materials in their environment and in their natural relations to one another. { 'fēld jē·āl-ə·jē }

**field gradient** [PHYS] 1. A vector obtained by applying the del operator to a scalar field. 2. A tensor obtained by dyadic multiplication of the del operator with a vector field. { 'fēld ,grād-ē-ənt }

**field gun** [ORD] Any artillery piece mounted on a carriage for use in the field, for example, a cannon. { 'fēld ,gən }

**field index** [NUCLEO] The constant  $n$  for a betatron in which the magnetic field strength at radius  $r$  is equal to  $B_0 (r/R)^{-n}$ , where  $R$  is the radius of equilibrium orbit of an electron, and  $B_0$  is the corresponding magnetic field. Also known as  $n$  value. { 'fēld ,in·deks }

**field intensity** [COMMUN] In Federal Communications Commission regulations, the electric field intensity in the horizontal direction. [PHYS] See field strength. { 'fēld in·ten·sə·tē }

**field investigation** [SCI TECH] An investigation carried out in the field; usually applied to an investigation made by someone not domiciled at the site. { 'fēld ,in·ves·tə·gā·shən }

**field ionization** [ELECTR] The ionization of gaseous atoms and molecules by an intense electric field, often at the surface of a solid. { 'fēld ,i·ən-ə'zā·shən }

**field-ion microscope** [ELECTR] A microscope in which atoms are ionized by an electric field near a sharp tip; the field then forces the ions to a fluorescent screen, which shows an

enlarged image of the tip, and in this is the most powerful microscope yet produced known as ion microscope. { 'fēld ,i·ən 'mī·krə'skōp }

**field laboratory** [SCI TECH] Usually a temporary or portable laboratory facility set up at the site of an operation to conduct chemical or physical evaluations. { 'fēld ,lab-rə,tōr-ē }

**field length** [COMPUT SCI] The number of columns, characters, or bits in a specified field. { 'fēld ,leng·th }

**field lens** [OPTICS] The lens in a two-lens eyepiece which is farther from the eye. { 'fēld ,lenz }

**field-line annihilation** See field-line reconnection. { 'fēld ,līn ə,nī-ə'lā·shən }

**field-line reconnection** [ASTRON] A topological rearrangement of the magnetic field lines surrounding an astronomical body, for example, the transfer of lines between open and closed configurations in the terrestrial magnetotail; a possible source of the energy released explosively in solar flares and magnetospheric substorms. Also known as field line annihilation; magnetic merging. { 'fēld ,līn ,rē·kə'nek·shən }

**field luminance** See adaptation luminance. { 'fēld ,lū·mə·nəns }

**field magnet** [ELECTROMAG] The magnet which creates a magnetic field in an electric machine or device. { 'fēld ,mag·nət }

**field map** [MAP] A map made in the field and bearing observations of various kinds upon which the final map is based. { 'fēld ,map }

**field moisture** [HYD] Water in the ground above the water table. { 'fēld ,mōis·chər }

**field of fire** [ORD] The area which a weapon or group of weapons may cover effectively with fire from a given position. { 'fēld əv 'fir }

**field of planes on a manifold** [MATH] A continuous assignment of a vector subspace of tangent vectors to each point in the manifold. Also known as plane field. { 'fēld əv 'plānz ōn ə 'man-ə,fōld }

**field of search** [ELECTR] The space that a radar set or installation can cover effectively. { 'fēld əv 'sərch }

**field of vectors on a manifold** [MATH] A continuous assignment of a tangent vector to each point in the manifold. Also known as vector field. { 'fēld əv 'vek-tərz ōn ə 'man-ə,fōld }

**field of view** [OPTICS] The area or solid angle which can be viewed through an optical instrument. Also known as field. { 'fēld əv 'vyū }

**field operator** [QUANT MECH] An operator function of space and time for the annihilation or creation of a particle. { 'fēld ,äp-ə,rād-ər }

**field pattern** See radiation pattern. { 'fēld ,pad-əm }

**field piece** [ORD] An artillery gun or howitzer mounted on a carriage, for use in the field. { 'fēld ,pēs }

**field pole** [ELECTROMAG] A structure of magnetic material on which a field coil of a loudspeaker, motor, generator, or other electromagnetic device may be mounted. { 'fēld ,pōl }

**field pressure** [GEOL] The pressure of natural gas in the underground formations from which it is produced. { 'fēld ,presh-ər }

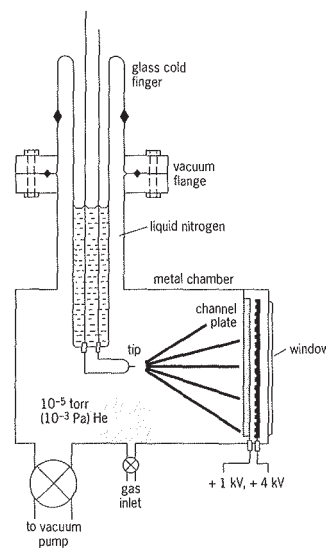
**field processing** [PETRO ENG] Treatment of oil and gas in the field prior to delivery to a refinery; includes separation into oil and gas fractions, separation of liquid hydrocarbons from the gas, and removal of water. { 'fēld ,präs·es·in }

**field-programmable gate array** [ELECTR] A gate-array device that can be configured and reconfigured by the system manufacturer and sometimes by the end user of the system. { 'fēld prō,gram-ə·bəl 'gāt ə,rā }

**field-programmable logic array** [ELECTR] A programmed logic array in which the internal connections of the logic gates can be programmed once in the field by passing high current through fusible links, by using avalanche-induced migration to short base-emitter junctions at desired interconnections, or by other means. Abbreviated FPLA. Also known as programmable logic array. { 'fēld prō,gram-ə·bəl 'lāj·ik ə'rā }

**field quenching** [MET] The quench cooling and tempering of a heated metal object at the site of construction or operation by using portable equipment rather than fixed manufacturing facilities. [SOLID STATE] Decrease in the emission of light of a phosphor excited by ultraviolet radiation, x-rays, alpha particles, or cathode rays when an electric field is simultaneously applied. { 'fēld ,kwench·in }

## ON MICROSCOPE



Field ion microscope.